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"cyclograph" will undoubtedly do much service hereafter. An analysis of the motions of the machine as it passes over obstructions is also likely to prove of value in the promotion of safety, and in the elimination of the "header" from the list of casualties.

A chapter on ball-bearings includes a discussion of the subject by Professor S. W. Robinson, which is a valuable contribution, especially as giving the limit of weight allowable for balls of any given size. The co-efficient of friction for a one-inch ball is given as about 0.00175, as derived from experiments upon the Lick telescope. The book is full of interesting information for the wheelman, and abounds in good reading for all those who are interested in the subject.

Steam. By WILLIAM RIPPER. London and New York, Longmans, Green, & Co. 12s.

THIS is a little primer of steam and the steam-engine. It is a reproduction of notes of lectures addressed by its author to an evening class of young "mechanical engineers" (the term is evidently not applied to the class usually considered to be represented by it in this country), and includes a course of discussions of steam-engines, boilers, and accessory subjects.

Within these two hundred pages are compressed the best compendium of the subject that has yet been published. It is also, so far as we have been able to discover, accurate, and is evidently written by an engineer familiar with the science and the art, and not, as is too often the case where these primers are produced, by an amateur or tyro hardly more familiar with the subject than those to whom his instruction is offered. A preliminary discussion of the physical properties of steam, the chemical principles of combustion, and the elements of thermodynamics, is followed by a brief description of the modern steam-engine, its construction, and its performance, which is really of value, and might well repay the professional for the time required to read it. The book is well illustrated, in the sense of having a good list of engravings, though their quality as specimens of the engraver's art may not be reckoned high, in the opinion of the expert. The compound

engine is described, and its principles summarized, and the book is concluded by a chapter on the management of engines and boilers.

AMONG THE PUBLISHERS.

WE have received No. 30 of "Odds and Ends from the Literary Junk Shop," by A. S. Clark of 34 Park Row, this city.

—"Education as a Factor in Civilization" is the title of an essay by Caroline B. LeRow in the *Modern Science Essayist* for June 15. In the issue of July 1 John W. Chadwick treats of "Evolution and Social Reform," dealing mainly with "The Theological Method."

—Painters—and by this we mean artists, and not carriage or house painters—are not, as a class, persons likely to take interest in the chemistry of paints and painting. Yet it appears that the Royal Academy of Arts in London has a professor of chemistry in the person of A. M. Church, a master of arts, and fellow of the Royal Society; and this same Professor Church has written a "Chemistry of Paints and Painting," which is published in New York by Macmillan. The book is intended for those who use paints, and is meant as a help, that paints and varnishes may be well chosen and properly used. It is not expected that any one will read the book through, but that information will be sought within its covers as occasion may occur. It has therefore happened that to some extent the same matter has been inserted under more than one heading in the book. The book is unique in its field, and should be available to all likely to be interested.

—Mr. Arthur H. Noll has written "A Short History of Mexico," which has been published by A. C. McClurg & Co. of Chicago. The author states in his preface that he has been unable to find any comprehensive history of Mexico in the English language, and he has accordingly endeavored to make up the deficiency. We wish we could say that he has succeeded; but in fact his work is extremely unsatisfactory. He has no intelligent concep-

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